

REMARKS/ARGUMENTS

Background and Current Status

This Amendment and Request for Continued Examination (RCE) is made in response to the Final Office Action of August 4, 2010, and in response to the interview with the Examiner conducted by Applicant and the undersigned attorney on January 27, 2011. The Final Office Action and the comments and observations made by the Examiner during the interview have been carefully reviewed and considered. The above amendments, particularly to independent claim 27, and the following remarks are considered responsive thereto.

By way of background, independent claim 27 and its dependent claims 2-3, 6-11, 13-20, 30-31, and 33-38 were examined and rejected in the Final Office Action and remain the only currently-pending claims in this case, even after entry of this Amendment. Applicant has made a number of edits to independent claim 27, as generally suggested or recommended by the Patent Examiner, once it became more clear during the interview how the present invention truly differs from the references currently being cited by the Patent Office. These edits to claim 27 are believed to define more clearly the scope of at least one of the inventions disclosed and taught in this application and in such a way as to more clearly distinguish such independent claim 27 from the references that have been cited and relied upon by the Examiner to date. Applicant believes that newly amended independent claim 27 highlights these differences and is now in condition for allowance based on the references that have been cited by the Patent Office and based on any references and art known to the Applicant. Additionally, since independent claim 27 should now be in condition for allowance, all of the other, still-pending claims 2-3, 6-11, 13-20, 30-31, and 33-38, which merely depend from and further limit independent claim 27, should also now be in condition for allowance. Applicant has made a few additional edits to several of the dependent claims; however, such edits were merely required to conform and avoid ambiguity based on amendments made herein to independent claim 27.

It is submitted that no new matter is presented by this Amendment, as all claim amendments are properly supported and taught by the application as originally filed. This

Amendment is believed to have corrected all deficiencies and bases of rejection (other than claim renumbering for publication) so that a Notice of Allowance can be promptly issued.

Record of Interview

In response to the Final Office Action and the fact that Applicant's prior amendments to the claims (and its supporting arguments) were obviously not sufficient enough to explain and highlight the significant differences between Applicant's inventions and the teachings from the references relied upon by the Patent Office, an interview was held with Examiner Brandi Parker on Thursday, January 27, 2011. Assignee/Applicant's CEO, Ms. Radhika Subramanian, attended the interview in person at the U.S. Patent & Trademark Office. The inventor and CTO of Assignee/Applicant, Dr. Roy Marsten, and the undersigned patent attorney, Jack Todd, attended the interview by telephone conference. Applicant appreciates the courtesy and time extended by the Examiner in granting and attending the interview on such short notice, after issuance of the Final Office Action, and particularly on a day in which an overnight snow storm made travel in Alexandria, VA and Washington, DC the day of the interview somewhat difficult.

Pursuant to 37 C.F.R. § 1.133(b), the following description is believed to be a complete written statement of the reasons presented at the interview as warranting favorable action. The following statement is intended to comply with the requirements of MPEP § 713.04 and expressly sets forth: (A) a brief description of the nature any exhibit shown or any demonstration conducted; (B) identification of the claims discussed; (C) identification of specific prior art discussed; (D) identification of the principal proposed amendments of a substantive nature discussed; (E) the general thrust of the principal arguments; (F) a general indication of any other pertinent matters; and (G) the general results or outcome of the interview, if appropriate.

Specifically, during the interview, Applicant emphasized and focused on the departure and differences between (i) its systems and methods, which are designed to help a planner (e.g. manufacturer, wholesaler, or retailer) who has to decide in advance what one or more configurations of a plurality of products to build and/or offer for sale to customers, in contrast

with (ii) a conventional configurator system, as described in Kapadia (US Pat No. 7,039,602), that enables a customer to select or custom-build a single, final and specific product configuration for purchase by selecting the features and options desired by the customer - with such selection typically being made sequentially on a feature by feature and option by option basis. Although the present application and references like Kapadia use similar terminology, such as optimization, configurations, options, and features, the underlying inventions and teachings of the present application and conventional configurator systems like Kapadia are quite different.

Applicant highlighted one of the key differences between its system and the teachings of Kapadia - which both discuss techniques for “optimizing” product configurations. Specifically, because the present application is intended to help a planner decide in advance what product configurations to build or sell before such plurality of products are offered for sale to a customer or even manufactured in the first place, the present application performs “simultaneous, multi-dimensional optimization” that takes into account all of the available and valid product features and options, to derive a global set of optimal product configurations that should be manufactured and/or offered for sale to its customers based on one or more desired objectives of the planner. The global optimization solution will result in a single configuration or a set of configurations - depending upon whether the planner just wants to know which is the one “best” configuration to build and/or offer for sale or whether the planner wants to know the top “r” plurality of configurations to build and/or offer for sale. The global optimal configuration(s) may include, and allow for, sub-optimal choices for some features and/or options, but the total configuration solution will be globally optimized, based on the objective function value and based on the desired objectives of the planner.

In contrast, Kapadia describes a traditional configurator system (similar to current automobile and computer manufacturers’ websites), which enables a customer to build or custom-design a single desired product, by selecting features and options desired by the customer for that one product, in which such features and option are traditionally selected in a linear or step by step process of selecting feature by feature and option by option. Kapadia does use

optimization, but such optimization is performed only at each step during the process of allowing the customer to custom-design his desired product and optimization is only made for the feature or list of options currently being presented to and available to the customer at that point in the process of custom-designing his desired end product.

During the interview, Applicant presented a simple, three feature product configuration example, that illustrated how the present invention could identify a “globally” optimal product configuration for those three features by simultaneously considering and optimizing all features and options, even though such an analysis ended up selecting a “suboptimal” choice for one of the features or options, as illustrated in the example. In contrast, Kapadia’s linear approach to optimizing just the feature or option that was currently being presented to the customer during the product selection process enabled the customer to design a final product configuration that he wanted but which was not optimized (at least based on the desired objective of the manufacturer or seller of the product). This occurred because optimization of the feature or option was only done for the specific feature or option being presented to the customer at each step of the selection process and did not consider or take into account what final product configuration or configurations might be globally optimal across all possible features and options.

Based on such distinctions, the Examiner suggested that Applicant further amend independent claim 27 to highlight the fact that Applicant’s system identifies a globally optimal configuration or subset of valid product configurations (defined by the number “r”) using simultaneous multi-dimensional optimization that takes into account all the available product features and options.

In addition, Applicant pointed out that its system did not make use of complete enumeration, which would involve plugging each valid configuration into a table and simply sorting through the variables to identify the top number of configurations based on the selected variable that the user wanted to optimize. Although complete enumeration is one solution that could be used to obtain similar results obtained by the system of the present application, unlike the present application which is capable of handling and analyzing n number of dimensions simultaneously, complete enumeration quickly becomes impractical and infeasible to create and

manage a table of all valid configurations as the number of features and options increase. Thus, complete enumeration can be used to solve very simple product configuration problems, but cannot be used when the number of possible configurations gets into the tens of thousands, millions, or more. Applicant has amended its claim 27 to confirm and make clear that its optimization model does not use or make use of conventional “complete enumeration” techniques to derive its set of globally optimal configurations.

Additionally, Applicant and the Examiner briefly discussed the Thurber article, which has also been cited by the Patent Office and which describes an attempt by Thurber to solve a similar problem being addressed by the present application. However, Thurber was unable to teach or explain how to deal with a large number of dimensions and a high number of product configurations, without making numerous assumptions to reduce the complexity of the problem, stating that “[f]ull [or global] dimensional analysis proved impractical.” (See, Abstract of Thurber). As discussed in detail on page 3 of the Thurber article, Thurber was, thus, forced to make assumptions and reduce the complexity of the problem by grouping product configurations into a smaller and more manageable number of clusters - in this case 14 distinct clusters or patterns. Thurber conceded that “[p]ast efforts to package options were marginally successful because of the complexity of combinations. Although we wanted full dimensional analysis, it was impractical because we’d have to treat each option as a unique dimension in addition [to other market criteria that also represented their own dimensions]. This dimensionality makes a data mart impossibly large, cumbersome, and slow.” *Id. (emphasis added)*. Thus, Thurber is not a valid reference because it states that the solution and system taught in the present application is impractical to achieve. However, the present application teaches exactly how to handle these multi-dimensions in a manner that is not impractical, cumbersome, or slow.

Although no conclusion was formally reached during the interview, the Examiner requested that Applicant make some additional modifications to independent claim 27, as part of an RCE filing and amendment in response to the current, Final Office Action, to highlight these distinctions from the references of record. The Examiner then indicated that, after reviewing amended claim 27, she might need to conduct an additional search to try to find other references

that might be more pertinent and relevant to Applicant's elegant system for using simultaneous multi-dimensional optimization that takes into account all available product features and options in each feature, to derive a global set of optimal and valid product configurations that should be made and/or offered for sale by a manufacturer or seller of products based on desired objectives of the manufacturer or seller of such products.

35 U.S.C. § 112 Rejection

The Patent Examiner objected to the use of the phrase "in advance," as was previously used in independent claim 27, on the grounds that such phrase was unclear and ambiguous. Applicant concedes the point and agrees that such terminology was ambiguous. Applicant has now deleted this phrase, which should obviate and eliminate this basis of rejection of claim 27 and all of its dependent claims.

35 U.S.C. § 103 Rejection

In the Final Office Action, independent claim 27 (and the majority of claim 27's dependent claims) were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over *Kapadia et al.* (U.S. Pat. No. 7,039,602) in further view of an article by Mike Thurber, entitled "Open Road to Strategic Value," Intelligent Enterprise, June 1, 1999 (hereinafter and previously referred to as "Thurber" or the "Thurber article") and *Schierholt* (US Pat. Publ. No. 2005/0149377). Other secondary references were also cited to obviate one or more of the dependent claims. Based on the above discussion and distinctions described between amended claim 27 and the references cited and relied upon by the Patent Office, Applicant respectfully submits that newly amended independent claim 27 should now be allowable over *Kapadia* in view of the Thurber article and *Schierholt*.

Further, because amended independent claim 27 is now allowable over the primary cited references, it is respectfully submitted that all of its dependent claims, which merely add further limitations or details directly or indirectly to independent claim 27 from which they depend, are equally allowable for the same reasons described above. Although Applicant does not

necessarily agree that such secondary references illustrate the points raised for rejection of one or more of the dependent claims and hereby expressly reserves the right to address and refute such issues in a future response or amendment, if that becomes necessary, Applicant believes that it is currently unnecessary to address these secondary references at this time. Specifically, Applicant believes that such secondary references and grounds of rejection of the dependent claims are now moot in light of the amendments made to independent claim 27 herein.

Conclusion

It is believed that the foregoing amendments and arguments have addressed all of the claim rejections in the Office Action, and have thus placed all pending claims in condition for allowance. Such allowance is earnestly and respectfully solicited.

Based on the amendments presented herein and based on the remarks set forth above, it is respectfully submitted that none of the cited references, whether taken alone or in combination, teach, discuss, suggest, contemplate, or require all of the steps or elements of the amended independent claim 27 and its dependent claims. In light of the amendments and remarks presented above, reliance upon the references of record to support a 35 U.S.C. § 103 rejection of the claims is now unwarranted.

Applicant previously has paid for 27 total claims and 3 independent claims. After the present amendment, Applicant has presented 25 total claims and only 1 independent claim; therefore, no additional claim fees should be due with this filing. Further, this Amendment is filed in conjunction with a Request for Continued Examination (RCE) and its related fees and with a Request for a Three-Month Extension of Time to Respond and its associated fees.

If our assessment of additional claims fees or any other fees due is in error, please charge any fees that might be due or credit any overpayment to our Deposit Account No. 505265. It is believed that the application and all of the amended claims submitted herein are now in condition for allowance and such allowance is respectfully requested.

[SIGNATURE FOLLOWS ON NEXT PAGE]

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Respectfully submitted,

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Dated:

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